UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,055	02/19/2004	Charles D. Bateman	HOOO5749 (HOOO-1-5749)	5748

128	7590	11/01/2005		EXAMINER

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ART UNIT	PAPER NUMBER
2636	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/782,055	BATEMAN ET AL.
	Examiner	Art Unit	
	Jennifer A. Stone	2636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37, 40-47 and 50-56* is/are rejected.

7)☒ Claim(s) *38, 39, 48, 49, 57 and 58* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____ .

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/24/05; 2/19/04.*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   <u>Claims 1, 5-8, 10, and 12</u> are rejected under 35 U.S.C. 102(e) as being

anticipated by Hennings et al. (US 6,778,906).

For claim 1, Hennings discloses a method comprising: receiving one of a caution

alert or a warning alert from a warning system; waiting a predefined period of time for

positive flight control input by the flight crew; and initiating auto-recovery if no positive

flight control input has been performed at time of expiration of the waiting period (col 7,

lns 35-46).

For claim 5, Hennings discloses initiating auto-recovery includes analyzing two or

more auto-recovery routes relative to one or more of a terrain database, an airport

database, and obstacles database, or a special-use airspace database (col 8, lns 31-38;

col 9, lns 3-25).

For claim 6, analyzing possible recovery routes includes: selecting the first

analyzed route that is determined to clear the caution or warning alert (col 8, lns 54-65).

For claim 7, Hennings discloses analyzing possible recovery routes includes

automatically selecting the recovery route determined to have the best climb gradient

(col 8, lns 31-38; col 9, lns 1-10). The "best climb gradient" is a relative phrase and is interpreted as any climb gradient necessary to avoid hazards or obstacles and to ensure the safety of the aircraft crew and passengers.

For claim 8, initiating auto-recovery includes sending flight instructions to an autopilot system (col 5, lns 58-61).

For claim 10, Hennings discloses initiating auto-recovery includes sending control signals to flight control actuators (Fig. 1, item 180; col 4, lns 1-8; col 7, lns 40-44).

For claim 12, the warning system includes an enhanced ground proximity warning system (col 7, lns 56-59; col 8, lns 59-63).

3.   Claims 14-17, 21, 23, and 25 is rejected under 35 U.S.C. 102(e) as being anticipated by Henning et al. (US 6,778,906).

For claim 14, Hennings discloses a system comprising: a means for receiving one of a caution alert or a warning alert from a warning system; a means for waiting a predefined period of time for positive flight control input by the flight crew; and a means for initiating auto-recovery if no positive flight control input has been performed at time of expiration of the waiting period (col 7, lns 35-46).

For claim 15, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 5 as stated above.

For claim 16, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claim 17, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

For claim 21, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 8 as stated above.

For claim 23, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 10 as stated above.

For claim 25, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 12 as stated above.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), as applied to claim 1, and further in view of Block et al. (US 6,591,170).

For claim 2, Hennings discloses initiating auto-recovery includes increasing flight path angle if a caution alert is received (col 8, lns 65-67; col 9, lns 1-10). However, Hennings does not disclose the flight path angle to be 2°. Block, however, teaches that numerous flight path angles are specified depending on terrain or runway data (col 7,

lns 57-67; col 8, lns 1, 12-16; Fig. 5, items 402, 404, and 410). It would have been obvious to one of ordinary skill in the art, at the time the invention was made that a pilot determines specific flight path angles depending on the terrain. For example, a 6° path angle may be necessary to navigate through mountainous terrain, while a 2° path angle may be necessary to navigate over a small town.

For claim 3, Hennings discloses initiating auto-recovery includes increasing flight path angle if a caution alert is received (col 8, lns 65-67; col 9, lns 1-10). However, Hennings does not disclose the flight path angle to be an additional 2° (4° total). Block, however, discloses that numerous flight path angles are specified depending on terrain or runway data (col 7, lns 57-67; col 8, lns 1, 12-16; Fig. 5, items 402, 404, and 410). It would have been obvious to one of ordinary skill in the art, at the time the invention was made that a pilot determines specific flight path angles depending on the terrain. For example, a 2° path angle may be necessary to navigate over a small town; however, it may be necessary to increase the path angle by an additional 2° while flying over mountainous terrain.

For claim 4, Hennings discloses initiating auto-recovery includes increasing flight path angle if a caution alert is received (col 8, lns 65-67; col 9, lns 1-10). However, Hennings does not disclose the flight path angle to be 6°. Block, however, discloses that numerous flight path angles are specified depending on terrain or runway data (col 7, lns 57-67; col 8, lns 1, 12-16; Fig. 5, items 402, 404, and 410). It would have been obvious to one of ordinary skill in the art, at the time the invention was made that a pilot determines specific flight path angles depending on the terrain. For example, a 6° path

angle may be necessary to navigate through mountainous terrain, while a 2° path angle

may be necessary to navigate over a small town.

6.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings

et al. (US 6,778,906), as applied to claim 1, and further in view of Reynolds (US

2003/0128122).

Hennings does not disclose a fly-by-wire system; however, Reynolds discloses

an auto-recovery that includes sending control signals to a fly-by-wire system

(paragraph 0005, lns 1-5; parag 0012; parag 0015; parag 0021). It would have been

obvious to include a fly-by-wire system for auto-recovery in order to integrate electrical

communication equipment with a central computer thereby reducing the amount of

equipment in the cockpit in order to conserve space.

7.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), as applied to claim 1, and further in view of Kelly et al.

(US 4,910,513).

Hennings discloses initiating auto-recovery, but does not disclose a stick-pusher.

Kelly, on the other hand, does disclose a stick-pusher for an aircraft controller (col 1, lns

62-65; col 24-32; col 7, lns 28-35). It would have been obvious to include a stick pusher

for auto-recovery so that a pilot acknowledges an abnormal condition (via the stick-

pusher before either the pilot or an auto-recovery system seizes control of the aircraft.

8.   Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), as applied to claim 1, and further in view of Bird et al.

(US 6,6745,0945).

Hennings discloses an enhanced ground proximity warning system, but not a

protected airspace alerting system. However, Bird discloses this feature (col 3, lns 25-

30; Fig. 1A, 1B, item 12; col 6, lns 49-52). It would have been obvious to include a

protected airspace alerting system so that a pilot is aware that a particular area is

restricted, thereby enhancing the safety of aircraft crew members.

9.   Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), as applied to claim 14, and further in view of Block et al.

(US 6,591,170).

The claims are interpreted and rejected for the same reasons as stated in the

rejections of claims 2-4, respectively.

10.   Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), as applied to claim 14, and further in view of Reynolds

(US 2003/0128122).

The claim is interpreted and rejected for the same reasons as stated in the

rejection of claim 9 as stated above.

11.   Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), as applied to claim 14, and further in view of Kelly et al.

(US 4,910,513).

The claim is interpreted and rejected for the same reasons as stated in the

rejection of claim 11 as stated above.

12.   Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), as applied to claim 14, and further in view of Bird et al.

(US 6,6745,0945).

The claim is interpreted and rejected for the same reasons as stated in the

rejection of claim 13 as stated above.

13.   Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), and further in view of Bird et al. (US 6,6745,0945).

For claim 27, Hennings discloses an apparatus for performing auto-recovery for

an aircraft, the aircraft includes position and information systems and automatic flight

control system, the apparatus comprising: memory for storing terrain data, airport data,

obstacle data (col 45, lns 27-40; col 8, lns 53-63); and a processor coupled to the

memory, the position and information systems, and automatic flight control system, the

processor comprising (col 45, lns 1-5; Fig. 1): a component for determining if one of a

caution alert or a warning alert exists based on data stored in the memory and

information received from the position and information systems (col 8, lns 56-65); a

component for waiting a predefined period of time for positive flight control input by the

flight crew; and a component for generating an auto-recovery instruction and sending

the generated auto-recovery instruction to the automatic flight control system if no

positive flight control input has been performed at time of expiration of the waiting period

(col 7, lns 35-46; Fig. 1, item 150). Hennings, however, does not disclose storing

protected airspace data. Bird, on the other hand, does disclose storing protected

airspace data into memory (col 6, lns 49-52; Fig. 1A, 1B, item 12). It would have been

obvious to store protected airspace data in memory so that a pilot is aware of a restricted area to avoid, thereby enhancing the aircraft's crew and passengers.

For claim 28, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 5 as stated above.

For claim 29, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claim 30, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

14.   Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), as applied to claim 14, and further in view of Block et al. (US 6,591,170).

The claims are interpreted and rejected for the same reasons as stated in the rejections of claims 2-4, respectively.

For claim 34, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 8 as stated above.

15.   Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), as applied to claim 27, and further in view of Reynolds (US 2003/0128122).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 9 as stated above.

For claim 36, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 10 as stated above.

16.   Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), as applied to claim 27, and further in view of Kelly et al.

(US 4,910,513).

The claim is interpreted and rejected for the same reasons as stated in the

rejection of claim 11 as stated above.

17.   Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), and further in view of Bird et al. (US 6,6745,0945).

For claim 40, Hennings discloses an system for performing auto-recovery for an

aircraft, the system comprises: aircraft position and information systems, an automatic

flight control system; memory comprising terrain data, airport data, obstacle data (col

45, lns 27-40; col 8, lns 53-63), and an auto-recovery computer program product (col 4,

lns 1-5; col , lns 40-45; Fig. 1); and a processor coupled to the memory Fig. 1, item

150), the position and information systems, and the automatic flight control system, the

processor comprising: a component for determining if one of a caution alert or a

warning alert exists based on data stored in the memory and information received from

the position and information systems (col 8, lns 56-65); and a component for generating

an auto-recovery instruction and sending the generated auto-recovery instruction to the

automatic flight control system if no positive flight control input has been performed at

time of expiration of a waiting period (col 7, lns 35-46; Fig. 1, item 150). Hennings,

however, does not disclose storing protected airspace data. Bird, on the other hand,

does disclose storing protected airspace data into memory (col 6, lns 49-52; Fig. 1A,

1B, item 12). It would have been obvious to store protected airspace data in memory so

that a pilot is aware of a restricted area to avoid, thereby enhancing the aircraft's crew and passengers.

For claim 41, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 5 as stated above.

For claim 42, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claim 43, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

For claim 44, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 8 as stated above.

18.   Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), as applied to claim 40, and further in view of Reynolds (US 2003/0128122).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 9 as stated above.

For claim 46, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 10 as stated above.

19.   Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906), as applied to claim 40, and further in view of Kelly et al. (US 4,910,513).

The claim is interpreted and rejected for the same reasons as stated in the rejection of claim 11 as stated above.

20.   Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hennings et al. (US 6,778,906), and further in view of Bird et al. (US 6,6745,0945).

For claim 50, Hennings discloses a computer program product residing on a

computer readable medium for generating an auto recovery instruction for an aircraft,

the product comprising: a component for determining if one of a caution alert or a

warning alert exists based on one or more of terrain data, airport data, and obstacle

data stored in memory, and information produce by aircraft position and information

systems (col 4, lns 30-44; col 8, lns 52-64; col 9, lns 3-25); a component for waiting a

predefined period of time for positive flight control input by the flight crew; and a

component for generating an auto-recovery instruction if no positive flight control input

has been performed at time of expiration of the waiting period (col 7, lns 35-46; Fig. 1,

item 150) and a component for sending the generated auto-recovery instruction to an

automatic flight control system. Hennings, however, does not disclose a memory for

storing protected airspace data. Bird, on the other hand, does disclose storing

protected airspace data into memory (col 6, lns 49-52; Fig. 1A, 1B, item 12). It would

have been obvious to store protected airspace data in memory so that a pilot is aware

of a restricted area to avoid, thereby enhancing the safety of an aircraft's crew and

passengers.

For claim 51, the claim is interpreted and rejected for the same reasons as stated

in the rejection of claim 5 as stated above.

For claim 52, the claim is interpreted and rejected for the same reasons as stated

in the rejection of claim 6 as stated above.

For claim 53, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

21.   Claims 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennings et al. (US 6,778,906) and Bird et al. (US 6,6745,0945), as applied to claim 50, and further in view of Block et al. (US 6,591,170).

The claims are interpreted and rejected for the same reasons as stated in the rejections of claims 2-4, respectively.

Allowable Subject Matter

22.   Claims 38, 39, 48, 49, 57, and 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

23.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Graham et al. (US 5,900,827) discloses measuring the alertness of a pilot by the pilot's switch actuation of control panels.

Graham et al. (US 5,243,339) discloses measuring the alertness of a pilot by the pilot's switch actuation of control panels.

Klein (US 4,775,116) discloses monitoring a pilot's physiological condition and enabling an automatic pilot to compensate for a pilot's inability to operate an aircraft.
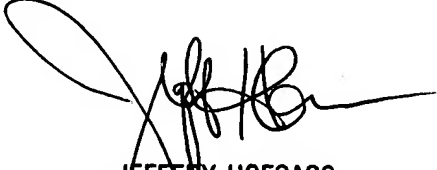
Nordstrom (US 5,057,834) discloses monitoring the consciousness of an aircraft pilot by measuring the pilot's steering deflections. An autopilot is enabled if the steering deflections are outside a predetermined threshold.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Stone whose telephone number is (571) 272.2976. The examiner can normally be reached on M-F from 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Hofsass, can be reached at (571) 272.2981. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Stone
October 26, 2005

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